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# **EXPORT COMPETITIVENESS OF YARN COMMODITIES AND TEXTILE INDUSTRIES OF CENTRAL JAVA IN THE WORLD MARKET**

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## **Abstract**

Yarn commodities and textiles industries are the main export commodities of Central Java. Nevertheless, there are still some problems. The purpose of this study was to analyze the market share advantages and competitive position of yarn commodities and textile industries of Central Java in the world market. *Acceleration Ratio* (AR) and Trade Specialization Index (TSI) were used to analyze the export competitiveness of yarn commodities and textile industries. The results obtained indicate that AR of the export of yarn commodities and textile industries in Central Java was greater than 1 ( $AR > 1$ ). TSI of yarn commodities and textile industries in Central Java was 0.45 and had positive value. These results indicate that Central Java has a strong market share and likely to be a regional exporter of yarns and textile commodities in the world market.

**Keywords:** Export competitiveness, yarn and textile commodities, acceleration ratio, trade specialization index

## **I. INTRODUCTION**

Foreign trade has an important role in generating economy, because it is a foreign exchange earner as well as a provider of employment. In addition, foreign trade also has the multiplier effect in other sectors out of agriculture, mining, industry, service and finance. Concerning the important role of foreign trade in economy, then foreign trade activities become one of the backbones of national economy.

Economic growth in Central Java province after 1999 always grows positively; it is determined by a variety of economic indicators including non-oil exports that tend to increase. Government policies to encourage exports, especially non-oil exports, strongly support healthy economy in Central Java. One of the efforts to reduce the level of economic sensitivity in Central Java against overseas economic turmoil is to direct government policies to non-oil export diversification (Rejekiingsih, 2012).

Foreign sector plays an important role in the economy of Central Java province. Table 1.1 shows, during the period of 2006 – 2010, the exports and imports were fluctuated. Similarly, the contribution of exports and imports to total national exports and imports was fluctuated. Although the value of exports and imports was fluctuated, the economy of Central Java can be regarded as an open economy. Consequently, changes or fluctuations in world trade will affect economic activities in Central Java. Sensitivity of Central Java economy is still further aggravated by the fact that exports only consists of a group of goods, with oil as the highest export earner (Rejekiingsih, 2012).

**Table 1.1: Percentage of Exports and Imports Value of Central Java to Total Exports and Imports of Indonesia from 2006 to 2010 (U.S. \$ Million)**

Year	Export Value			Import Value		
	Indonesia	Central Java	%	Indonesia	Central Java	%
2006	100.798,6	3.114,7	3,09	61.065,5	6.266,5	10,26
2007	114.100,9	3.469,7	3,04	74.473,4	7.006,8	9,41
2008	137.020,4	3.272,2	2,39	129.197,0	9.292,1	7,19
2009	116.510,0	3.066,5	2,63	96.829,2	6.331,0	6,54
2010	157.779,1	3.868,6	2,45	135.663,3	9.645,1	7,11

Source: Badan Pusat Statistik, 2011

By sector, the exports of industrial products are the largest contributor of non-oil export revenues of Central Java, especially for yarn commodities and textile industries. Table 1.2 shows that the value of export commodity most of Central Java increased from 2009 to 2010, except for mining commodities and excavation that declined. The commodities that have the greatest contribution to total exports of Central Java are yarn commodities and textile industries by 40.7% in 2010. Therefore, it can be said that yarn commodities and textile industries are export concentration for Central Java province.

In building strong yarn commodities and textile industries and has high competitiveness, many challenges or problems must be faced. The first problem is Central Java exports are concentrated to certain export markets like the United States, and it is vulnerable to global economic and financial turmoil. The second problem is the invasion of imports from China. Similar products from China have much lower price with the same quality.

**Table 1.2: Value and Percentage of Export Commodities Group of Central Java in 2009-2010 (U.S. \$)**

No	Commodities	2009		2010		Change
		Value	%	Value	%	%
01	Livestock	88.279.980	2,88	94.511.740	2,44	7,06
02	Agriculture and Forestry	101.779.406	3,32	108.298.282	2,80	6,40
03	Mining and Quarrying	33.980.469	1,11	8.662.674	0,22	-74,51
04	Manufacture of food, beverages, and tobacco	82.424.937	2,69	95.556.610	2,47	15,93
<b>05</b>	<b>Yarn and textile industry</b>	<b>1.163.164.754</b>	<b>37,93</b>	<b>1.572.524.432</b>	<b>40,7</b>	<b>35,19</b>
06	Industrial wood, cork and straw	432.998.973	14,12	529.819.261	13,7	22,36
07	Paper industry	29.733.454	0,97	42.869.900	1,11	44,18
08	Leather and leather industry	11.635.234	0,38	14.633.909	0,38	25,77
09	Chemical industry, Plastic and Rubber	142.230.482	4,64	184.659.747	4,77	29,83
11	Oil	181.162.818	5,91	194.549.112	5,03	7,39
12	Personal equipment	18.579.211	0,61	19.682.864	0,51	5,94
13	Industrial minerals and rocks	64.415.039	2,10	67.246.292	1,74	4,40
14	Industrial metal	18.402.170	0,60	24.225.733	0,63	31,65
15	Industrial machinery, electrical and electronic	103.689.304	3,38	132.634.988	3,43	27,92
16	Vehicles and spare parts	302.814	0,01	1.003.314	0,03	231,33
17	Other industries	593.680.487	19,36	777.712.683	20	31
	TOTAL	3.066.459.532	100	3.868.591.541	100	26,16

Source: Badan Pusat Statistik, 2010

In the recent development, the exports of yarn and textile industries have grown slower than the main competitor countries like China. It shows that Indonesian yarn and textile industries in general and Central Java in specific should have high competitiveness in order to compete with similar industries from competing countries like China. It is, therefore, important to conduct research related to the competitiveness of a country's commodity exports in general and in regions in specific.

Several studies discussed the competitiveness of a commodity, such as: Rejeki Ningsih (2012), Oktaviani et al (2008), Suprihatini (2005), Veronika (2008), Turukay (2010).

Based on the background and problem formulations above, the objectives of this research are: to analyze the market share advantage and competitive position of yarns commodity and textile industry of Central Java in the world market

The rest of the paper is organized as follows: section 2 provides a brief review of the relevant literature. Section 3 presents research methodology used in the study. In section 4, provides the findings of the study. Section 5 concludes the paper.

## **2. LITERATURE REVIEW**

### **International Trade**

Trade is a process of exchange of goods and services on the basis of consensual, to obtain the required items. In times of globalization, trade is not only done in a single country. Even the world has entered free trade. There is no country that does not have relation with other countries (Dumairy, 1996).

Trading with other countries can possibly make profit, which can buy items in cheaper price and may be able to sell abroad at a relatively higher price. Foreign trade often arises because of differences in the prices of goods in different countries (Nopirin, 1999)

Price is determined by production cost, which consists of wages, cost of capital, land rent, the cost of raw materials and efficiency in production process. To produce certain types of goods from one country to another will be different in production cost, and thus the price of their products. This difference is due to differences in the number, type, quality and ways to combine production factors in production

process. The price difference is at the base of the emergence of differences among countries (Nopirin, 1999).

The price difference is not just caused by the differences in production cost, but also because of differences in income and tastes. The demand for an item is determined by tastes and incomes. Taste can play an important role in determining the demand for some goods among various countries. If the supply of goods in one country is not enough to meet the demand, the country can import from other countries. Taste factor for a particular item can play an important role. In addition to taste, the demand for goods is something determined by income. The conclusion that can be drawn is, in principle, there are two main factors that lead to the emergence of international trade; the factors that affect demand and supply (Nopirin, 1999)

According to Hady (2001), the supporting factors for international trade are:

1. To meet the needs of domestic goods and services
2. The desire to gain profit and increase state's revenues.
3. The big difference in the ability of the mastery of science and technology in processing economic resources.
4. The excess of domestic products that need new markets to sell the products.
5. The difference in circumstances such as natural resources, climate, labor, culture, and the population that cause the difference in products and production limitations.
6. The taste similarity to a good.
7. The desire to open cooperation, political relations and support from other countries.
8. The globalization era so that no country in the world can live alone.

## **Competitiveness**

According to Suprihatin (1998), competitiveness is the ability of a manufacturer to produce a commodity with a fairly good quality and low production costs, so at prices occurred in international market, it can be produced and marketed by producers by gaining sufficient profit and can maintain continuation of their production activities.

The other definition is that competitiveness is the ability of a commodity to enter foreign markets and the ability to be able to survive in the market, in the sense that if a product has the competitiveness, so the product is demanded by many consumers (Tambunan, 2001). Regarding the presence of competitiveness advantages, competitive advantage of a commodity is classified into two types; natural advantage / absolute advantage and acquired advantage.

At this time, natural advantage or absolute advantage possessed by a nation to one of its commodity does not directly cause these commodities to dominate the world market share. It is because the number of producers is not just one country, but there are some countries which produce commodities with the same conditions of natural advantages. To be competitive in the world market, a commodity must have other advantages in addition to natural advantages, namely competitive advantage. Competitive advantage is an advantage of a commodity that can be developed, so this advantage must be created to be able to have it.

## **Comparative Advantage Theory**

Comparative advantage is a central concept in international trade theory which states that a country or region should specialize in producing and exporting goods and



services that can be produced with relatively more cost efficient than other goods and services, and importing goods and services that do not have comparative advantage.

This theory was first stated by David Ricardo in 1817 as a basis for improving people's economic welfare through international trade. The theory of comparative advantage generally supports the specialization of production in a country based on intensive use of production factors which are relatively dominant, including accumulation of physical capital and research (Salvatore, 1997).

According to David Ricardo (Hady, 2001), trade can be carried out by countries that do not have absolute advantage in both commodities traded by performing product specialization with smaller absolute loss or has comparative advantage. It is known as Law of Comparative Advantage. Comparative advantage is distinguished into cost comparative advantages (labor efficiency) and production comparative advantage (labor productivity).

According to the theory of *cost comparative advantage (labor efficiency)*, a country will benefit from international trade if conducting production specialization and exporting goods in which the country can produce more efficiently and importing goods in which the country is relatively less productive or inefficient.

Based on the analysis of *production comparative advantage (labor productivity)*, it can be said that a country will benefit from international trade if performing production specialization and exporting goods in which the country produces more productively and importing goods in which the country is relatively less productive or unproductive.

In other words, *cost comparative advantage* emphasizes that comparative advantage will be achieved if a country produces a product that requires the least labor hours than other countries so that it results in production efficiency. *Production comparative advantage* emphasizes that comparative advantage will be achieved if the work force in a country can produce more goods / services compared to other countries so that it does not require more labor.

Thus, the profit of trade is gained if a country specializes in goods that have *cost comparative advantage* and *production advantage*, or by exporting goods with high comparative advantage and importing goods with low comparative advantage.

## **Export**

Exports of a country, the whole or partial value, are goods and services produced in the country. Many factors will determine the ability of a country to export goods produced and basically export interests in a country is always different from other countries. In some countries, export is very important, which includes a significant portion of the national income. However, in most other countries, the role is relatively small (Sukirno, 2004).

A country can export its products to other countries if the goods are needed by them, and they are not able to produce the goods or the production can not fulfill domestic needs. The other factor is the ability of the state to produce goods that can compete in foreign markets. It means that the quality and price of the exported goods must be at least as good as the ones traded in foreign markets. Public taste abroad for goods exported overseas has very important role in determining a country's exports. Generally it can be said that the more types of goods having such privileges produced by a country, the more exports can be done (Sukirno, 2004).

### 3. RESEARCH METHODOLOGY

#### Types and Sources of Data

The data used in this study was secondary data from the Badan Pusat Statistik (BPS) of Central Java Province. The secondary data used was the data of exports and imports value of yarn and textile industry with the code of *the Harmonized System* (HS) of Central Java province in 2006-2011.

The classification of textile industry and textile products (TPT) based on trade uses *the Harmonized Commodity Description and Coding System* abbreviated by HS (*Harmonized System*) which is a result of the *Custom Cooperation Council* of all GATT members. The classification of textiles and textile products (TPT) according to *Harmonized System* in detail can be seen in Table 3.1:

**Table 3.1: The Classification of TPT Industry under *Harmonized System***

Chapter 50	<i>Silk, ranging from cocoons suitable for reeling up to woven fabrics</i>
Chapter 51	<i>Cotton, not carded, ranging from waste cotton to woven fabrics</i>
Chapter 52	<i>Wool, ranging from unimproved wool to woven fabrics</i>
Chapter 53	<i>Other vegetable fiber, ranging from prosseed but not spun to woven fabrics</i>
Chapter 54	<i>Man made staple fibers, ranging from yarn and threads to woven fabrics</i>
Chapter 55	<i>Man made stample fibers, ranging from fiber and tows including waste, until woven fabricsm (synthetic or artificial)</i>
Chapter 56	<i>Non-woven, special yarns, ropes, etc, until netting (of all types of fibers)</i>
Chapter 57	<i>Carpets, of all types of fibers</i>
Chapter 58	<i>Special woven fabrics, embroidery of all the materials in raschel grouped in chapter 60 (knitted fabrics)</i>
Chapter 59	<i>Impregnated coated, laminated and textiles article suitable for industrial use</i>
Chapter 60	<i>Knitted or crocheted fabrics of all materials</i>

Chapter 61	<i>Apparel and clothing accessories, knitted or crocheted</i>
Chapter 61	<i>Apparel and clothing accessories, not knitted or crocheted</i>
Chapter 62	<i>Other made up article, including blanket, bed linen, table linen, toilet linen, until worn clothing</i>

Source: Djafrie, 2003

## Analysis Instruments

### a. *Acceleration Ratio (AR)*

*Acceleration Ratio* (AR) indicates whether a country can seize overseas markets (in the sense that it can defeat its competitors) or its position is weaker in domestic market or export market. *Acceleration Ratio* is the ratio of acceleration or speed increase ratios. The use of acceleration ratio index or speed increase ratio is to indicate whether a country can seize export markets (in terms of it can defeat its competitors), or its increasingly weak position in the export market or in the domestic market. Mathematically, AR index can be calculated as follows (Tambunan, 2004)

$$AR = ((trendX_{ij}) + 100) / ((trendM_{ij}) + 100) \dots\dots\dots(1)$$

Where:

$X_{ij}$  : Export value of commodity  $i$  of state / region  $j$

$M_{ij}$  : Import value of commodity  $i$  of state / region  $j$

If the value is close to or greater than 1, it means that Central Java can seize export markets for yarns and textiles commodity; smaller than 1 or close to 0 means that the position of Central Java is weak, and less than 0 or close to -1 means that there are other countries that seize the market share of commodity exports of textile and yarn of Central Java.



## **b. Trade Specialization Index (TSI)**

Trade specialization index is used to analyze the position or stage of a product's development. TSI can describe whether, for a particular type of product, Indonesia tend to be an exporter or importer country. Mathematically, it can be formulated as follows: (Tambunan, 2004)

$$\text{TSI} = (\text{X}_{ij} - \text{M}_{ij}) / (\text{X}_{ij} + \text{M}_{ij}) \dots\dots\dots(2)$$

Where:

$\text{X}_{ij}$  = Export value of commodity  $i$  of state / region  $j$

$\text{M}_{ij}$  = Import value of commodity  $i$  of state / region  $j$

TSI index is between -1 and + 1. If it is positive (more than 0 to 1), then yarns and textile commodity are said to have strong competitiveness or Central Java tends to be the exporter of textile and yarn, but if the index value is negative (below 0 to -1), it means that the competitiveness of yarns and textile commodity of Central Java is lower or Central Java tends to be the importing country.

The TSI index can also be used to identify the growth rate of a commodity in the trade divided into five stages as follows:

### **1. Introduction stage (-1 <TSI< -0,5)**

When an industry (forerunner) in a country A exports new products and newcomer industry coming later (latercomer) in country B imports the products.

### **2. Import Substitution Stage (-0,5 <TSI< 0)**

At this stage the industry in country B shows very low competitiveness because the production level is not high enough to achieve economies of scale. The industry exports products with good quality and the domestic production is still

lower than domestic demand. In other words, for the commodities at this stage, country B imports more than exports.

3. Export expansion stage (growth) ( $0 < TSI < +0,8$ )

The industry in country B performs large-scale production and the exports begin to increase. In the domestic market, the supply for the commodity is greater than the demand.

4. Independence stage (maturation) ( $0,81 < TSI < 1$ )

At this stage the product is at the stage of standardization regarding the technology in it. At this stage country B is a net exporter

5. Reimport stage ( $1 > TSI > 0$ )

At this stage, the industry in country B is less competitive in the domestic market than the industry of country A, and the domestic production is less than the domestic demand.

#### **4. FINDINGS**

##### **The Export Development of Yarn Commodities and Textile Industries of Central Java**

Here is the exports development of yarn commodity and textile industry in Central Java from 2006 to 2011. Table 4.1 shows that the commodity exports value of yarn and textile industry was fluctuated. The highest export value was in 2011, amounted to U.S. \$ 1,864,521,024. In 2009, the commodity exports value of yarn and textiles fell caused by the global economic crisis that hit the United States and Europe. Similarly, the contribution of commodity export of yarn and textile industry to total exports was fluctuated. The highest contribution of exports in 2010 was 40.65%.

**Table 4.1: The Export Value and Percentage of Yarn Commodities and Textile industries in Central Java in 2006-2011 (U.S. \$)**

<b>Year</b>	<b>Value</b>	<b>%</b>
<b>2006</b>	1.193.905.055	38,33
<b>2007</b>	1.309.419.321	37,74
<b>2008</b>	1.211.182.599	36,74
<b>2009</b>	1.163.164.754	37,93
<b>2010</b>	1.572.524.432	40,65
<b>2011</b>	1.864.521.024	39,74

Source: Badan Pusat Statistik, 2006-2011

Based the commodities group of yarn and textile industry by the code of HS 2 digit, the commodities of non knitted goods and clothing accessories had the largest export value compared to the others (Table 4.2).

**Table 4.2: The Exports of Central Java By the Code of HS 2 Digit 2007-2011 (USD)**

<b>Code HS 2 Digit</b>	<b>Items</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
50	Silk	443	2.952	233	21.606	8.261
51	Wool, animal hair, yarn, woven and horsehair	6.800	578.428	212.694	2.383.403	1.800.959
52	Cotton	189.324.235	152.006.367	108.059.212	148.246.045	153.297.543
53	Textile and other vegetables fibers	158.245	91.352	60.337	53.920	187.772
54	Artificial filaments	167.564.869	146.947.338	164.545.839	171.963.578	187.127.722
55	Broken artificial fibers	330.642.040	284.777.813	258.126.615	433.948.551	520.560.837
56	Wadding, nonwovens felts, special or spun yarns	2.177.046	274.795	21.851	20.494	1.262.076
57	Rugs and other textile coverings	40.637	89.307	47.456	538	152.439
58	Special woven fabric, lace and embroidery tapestry	1.460.584	2.101.295	1.671.506	1.914.259	835.578
59	coated textile fabrics, suitable for industry	2.390.871	544.403	125.529	266.251	1.250.456
60	Knitted and connected fabrics	299.385	254.779	220.170	103.363	370.321
61	goods and accessories of knitted clothing	127.037.911	136.447.645	132.576.908	137.738.116	180.816.079

62	Goods and accessories of non knitted clothing	406.719.076	413.173.890	450.279.272	607.358.125	723.303.653
63	Other made up textile goods and textiles.	81.597.179	73.893.962	47.419.954	70.895.418	95.333.751

Source: Badan Pusat Statistik, 2007-2011

Meanwhile, based on the country's main export destination, the United States had approximately 40 percent of textile export share of Central Java (see table 4.3).

**Table 4.3: Destination Country for Yarn Commodities and Textile Industries of Central Java Year from 2006 to 2011 (Million U.S. \$)**

Year	Destination Country	Value (Million U.S. \$)	% to Group
2007	USA	410,75	31,37
2008	USA	374,09	30,89
2009	USA	372,28	32,01
2010	USA	545,88	34,71
2011	USA	602,93	32,34

Source: Badan Pusat Statistik, 2006-2011

#### ***Acceleration Ratio (AR)***

Table 4.4 shows that AR of commodity export for yarns and textile industry in Central Java was greater than 1 ( $AR > 1$ ), it indicates that the textile and yarns commodities of Central Java had a strong export market. AR value for the textile yarns and commodities which was larger than one and positive illustrates the difference in the growth rate of exports and imports of yarns and textile products of Central Java in the world market, the export growth rate of textile and yarn of Central Java was greater than the import growth rate. Although it has AR greater than one ( $AR > 1$ ), the longer the AR index fell. It was because the textile products were in competition with imported textiles from other countries, especially China.



**Table 4.4: Acceleration Ratio of Yarn Commodity and Textile Industry Export of Central Java 2006-2011**

<b>Year</b>	<b>AR</b>
2006	3,25
2007	2,65
2008	2,34
2009	2,16
2010	2,04
2011	1,95

Source: Processed Data (2013)

### **Trade Specialization Index (TSI)**

Based on table 4.5, from 2006 to 2011, the average TSI of yarns and textile commodities of Central Java was 0.45 and the value was positive. It means the textile and yarns commodities of Central Java have strong competitiveness in the export trade of textile and yarn commodities in the world market, or Central Java tends to be exporters.

**Table 4.5: Export Trade Specialization Index of Yarn Commodities and Textile Industries of Central Java 2006-2011**

<b>Year</b>	<b>TSI</b>
2006	0,57
2007	0,77
2008	0,32
2009	0,40
2010	0,35
2011	0,29
Mean	0,45

Source: Processed Data (2013)

In general, it can be said that TSI of yarn commodity and textile industry in Central Java are at stage III or stage of export expansion (growth). This stage means that the industries in Central Java conducted large-scale production and the exports began to

increase. In the domestic market, the supply for the commodities was greater than the demand.

## **6. CONCLUSION**

Export *Acceleration Ratio* of yarn commodity and textile industry in Central Java was greater than 1 ( $AR > 1$ ). Trade Specialization Index (TSI) of yarns and textile commodities of Central Java was 0.45 and the value was positive. The results of AR and TSI indicate that Central Java has a strong export market and yarns commodity and textile industry in Central Java at the stage of export expansion (growth)

Yarns commodity and textile industry in Central Java were concentrated on a few commodities, such as: non-knitted goods and clothing accessories, broken artificial fibers, cotton, artificial filaments, and goods and supplies of knitted garments.

The recommendation is that the entrepreneurs in the textile field in Central Java should try to open new markets out of the United States. Besides, the government should provide affirmative action to employers of yarns and textile commodities starting from upstream, middle and downstream sectors.

The limitation of this study is the short period of the study. For further research, it is suggested that the period of research should be longer and can use other measurements to assess the export competitiveness of yarns commodity and textile industry in Central Java, such as Constan Market Share (CMS), Intra Industry Trade (IIT), Concentration Ratio (CR), and so forth. In addition, in-depth research on each sector in the textile industry (upstream, middle and downstream) needs to be conducted

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